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ABSTRACT

This study assesses the role of online searching in school library media centers as it has been reported in the literature and also as seen in the results of a 1986 survey of school-based online providers and vendors. Although online searching in the school environment was not found to be broadly reported in the literature, the survey showed the topic was one of growing interest in schools across the country. Literature and survey findings are reported and compared in three major areas: (1) people: both students and library media specialists are doing online searching, media specialists receive their training in a variety of ways, and students are using online searching for class related topics and papers; (2) policies: there is little evidence in the literature on the establishment of policies for online access, while the survey showed current school policies to vary widely; and (3) practice: the results of the survey confirm the findings of the literature regarding widespread use of microcomputers (especially Apple), and use of specific networks and databases. An annotated 21-item bibliography of recently published materials which describe programs and provide guidelines for implementing online searching in the schools is provided as a locator for educators, administrators, and school library media specialists. Copies of the survey instruments for media specialists and for vendors are appended, as well as a list of the names, addresses, and telephone numbers of contact persons for the major vendors who work with school media specialists. (EW)

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ONLINE INFORMATION SERVICES FOR SECONDARY SCHOOL STUDENTS: A CURRENT ASSESSMENT

Elizabeth Smith Aversa
Jacqueline C. Mancall
and Diane Oesau

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INTRODUCTION

This review addresses the role of online searching in school library media centers as it has been reported in the literature, and focuses on the secondary or high school level since this search mode is still virtually unreported in middle and elementary schools. Although the capability to search electronically for information stored in a remote host computer has been available for nearly 20 years, it is only since 1980 that real movement to adopt this innovation for students has moved into schools below the college level.

Online usage reported in schools has been mainly bibliographic in nature, meaning computers have been used to do literature searching via access to bibliographic databases. These databases contain files of document descriptions (i.e., descriptions of information sources in any format) and include such access points as author, title, source, document type, date of publication, language of publication, abstract of content, and descriptive subject terms. The online process is one in which a searcher employs a set of predefined commands in order to direct the computer to search machine-readable indexes for the desired information or references to materials that contain it.

This discourse looks at what is still a relatively undefined and emerging growth area in providing information services in schools. Attention is directed to areas of concern reported by pioneer practitioners and by those who have studied them. The focus is on the impact of online access for students, rather than how increased service is provided to teachers and school administrators.

Readers should note that recent technological advances are rapidly changing modes of information storage. The ability to store vast quantities of information (i.e., virtually millions of document records) on a single laser disk—a disk that can be purchased and accessed in-house—will certainly cause changes in the configuration of online services in the near future. Configurations for information access in the school environment may soon include in-house use of databases on disks for the most heavily used information; network access from media centers to district level or professional collections, compact disks for less frequently needed information, and online access to search services for the very recent and/or rarely needed information sources. For example, a building-level media center might own ERIC on disk and only use a search service for the latest updates, while disks of a highly technical database might be shared among schools in an administrative district, with online access to the vendor available locally for the most recent database records. Hence, students will need to learn about not only print and online sources, but other modes of information access as well.

The review that follows does not attempt to cover or suggest an exhaustive list of readings. The goals are threefold: first, to lead readers through what we believe the current literature indicates about the impact of online access on information services and instruction for students; second, to look at a survey that we believe shows what was happening in 1986; and third, to offer a location guide to materials readers should consider pursuing for additional information.

The Online World: A School View

Online searching in schools is a relatively recent phenomenon, with a limited published literature on the subject—a literature of essentially a popular rather than a scholarly nature. The earliest reported access to online databases was in 1976 in the Montgomery County Public School System in Maryland, when high school seniors were allowed to supplement their manual information gathering by submitting search requests to the district's Professional Library where their requests were carried out by professional searchers (Dowling, 1981). The first online account in a school, i.e., acquisition of an instructional password for training students to search, was reported by DIALOG to have been Radnor High School in Radnor, Pennsylvania; online services were introduced there in 1980. Since that time a growing number of school library media specialists and administrators at the local and state level have acknowledged the importance of providing information for students from electronically available sources by their actions: acquiring the equipment, training a trainer, arranging for financial support, and developing curriculum materials.

Schools across the country have expanded reference and bibliographic access by going online, although such access is still extremely limited in scale, and where it does occur, is often limited to a special group of students or classes (see the survey results in the following chapter). At the present time, the major search services for bibliographic information that are used in schools are DIALOG and BRS, with WILSONLINE a more recent but important addition. Although more limited in terms of mention in the school related literature, there are some references to the utility of other online vendors, such as CompuServe, The Source, and the Dow Jones News Retrieval Service for access to online encyclopedias, video games, news bulletins, book and movie reviews, weather, sports, airline guides, and other types of information (Lynch, 1987; Shea, 1984).

The available literature discusses when, why, and where online moved into schools; points out the advantages and disadvantages of online access; provides advice on getting started in terms of how to initiate service; suggests the development of online related curricular goals, objectives, and curriculum materials; presents management considerations in establishing online services; and sheds some light on the effects of online use on student use of materials, including identification of the most highly used and appropriate online databases. The remainder of this chapter reviews some of the key ideas presented in these publications.

The Advantages of Online Access

There are numerous advantages to connecting students with information electronically. Such access extends the limited resources available to them in the school library media center and thereby increases the potential diversity of information available to solve their information related problems. Students are able to locate the most current information, since online databases are continuously updated. Search time is reduced since access can be gained more quickly to information through indexes that are cumulative and comprehensive. Additional entry points for searching are available, such as key words and phrases. This may mean that the search is more accurate than a manual one with less likelihood of overlooking or miscopying references from printed indexes. In addition, electronic access creates excitement about the research process, and provides a means to search multifaceted topics, which is difficult in printed indexes (Craver, 1985; Dowling, 1981; Mancall, 1984; Pruitt & Dowling, 1985; Wagers, 1984). Examples of searches performed in the school setting are available that can help the uninitiated see the steps, decision points, and advantages of searching online (Mancall, 1984; Pruitt & Dowling, 1985). Teaching students about online searching is also reported as another facet of computer literacy initiatives, part of preparation for success at the college level, easy, and even considered cost effective by one author who points out that it may be cheaper to access some expensive reference sources online rather than having to purchase the printed versions for users (Schindler, 1986). Providing access to the broad world of information resources available electronically also makes students aware of resources outside the school (Wagers, 1984), provides an opportunity for school library media specialists to work in closer unison with teachers, and for students to learn research and problem solving skills and question refinement. Online searching offers a unique opportunity to help students articulate their information needs more clearly, and may be the logical step in developing skills that will make students more effective consumers of information services in the future.

Of course, there are some disadvantages that must also be considered. Most importantly, going directly to an online search may not be the best approach for all subjects. A single concept search may be best handled using print tools, and multiple users of such items as multi-volume indexes and encyclopedias can be accommodated better by print sources.

In addition, other disadvantages of online use have been cited:

- Suitable databases for students are not available in all subject areas, and for those that are appropriate for student use, school library collections may be unable to provide the journals and other sources identified by the online search;

- User frustration on the part of the media specialist and student may result when computer systems are down or when telecommunications difficulties are encountered, especially when student time for library-media related activities is limited to weekly or even daily class schedules;

- The financial element—start-up and training costs, investments in material and equipment—cannot be overlooked by the media specialist; and

- Additional time on the part of the media center staff may be required if online is to be added to the existing repertoire of instructional tasks and services provided. (Kachel, 1986; Levinson & Walcott, 1985; Mancall, 1984)

Getting Started

In order to consider initiation of online information retrieval for students, a school library media specialist must, of course, understand what online access is and what type of information is available and suitable for students in the online world. Dowling and Pruitt (1987) suggest the components of a 15-hour inservice course designed to provide guided hands-on practice in online searching for library media specialists. This course begins with instruction in the use of computerized bulletin boards to allow participants to become familiar with telecommunications and use of communications software. The other sessions concentrate on accessing an information utility, conducting searches on DIALOG databases, and examining full-text databases. Objectives, activities, and reading assignments are included for all sessions.

To "get started," it is also essential to identify what equipment and telecommunications arrangements are needed, as well as to obtain some ballpark figures on potential costs. Swisher and Mancall (1986) point out that the availability of a microcomputer in the school library media center means that the basic component of communications between the center and any dial-up service is ready. Other components needed for online access include: (1) communications software; (2) a serial communications interface; (3) a modem; and (4) a printer, if the capability to print out results while doing a search is desired. In addition, if products of searches are to be stored (i.e., downloaded) for future use, the communications software must have this feature.

In an overview of how service was brought to 22 senior high schools in Maryland, Pruitt and Dowling (1985) identify planning considerations for the selection of hardware, telecommunications software, selection of an information utility (i.e., search service vendor), and preparation of curricular objectives and materials. Dowling (1981) suggests there are four steps in introducing service: (1) acquiring the software needed; (2) selecting search ser-

vice vendor(s) appropriate to the school environment; (3) obtaining training in how to use the vendor system(s) selected; and (4) introducing the service to faculty and students along with other uses of microcomputers and in conjunction with work on suitable units of instruction.

Aversa and Mancall (1986) call attention to some of the financial parameters that must be considered in planning for online services. In budgeting for online services, the school library media specialist faces planning for a service which has no history; therefore, initial budgeting will have to include funds for anticipated service use and will have to be based on local projections which may differ widely between schools and school districts. The rationale for the budget will depend on the goals and objectives established for the program. Specific budget items fall into the categories of capital expenses for equipment and space needs; operating expenses for connect time, communication costs, supplies, documentation, professional training; and additional operating expenses such as print charges, fees for saved searches, and costs of online ordering, if these are allowed. Miscellaneous expenses must also be accounted for, such as equipment upgrades and maintenance, and travel to online conferences and demonstrations. Suggestions for a sample budget and rationale can be found in *Pennsylvania Online: A Curriculum Guide for School Library Media Centers* (1985), a publication of the Pennsylvania Department of Education.

The literature also contains case studies of how online has been introduced, as well as suggestions for how it should be taught. For example, Schindler (1986) selected DIALOG as a suitable vendor because of the Classroom Instructional Program rate of $15 per hour of connect time. A vendor seminar provided initial training. The *DIALOG Blue Book* (compendium of databases with unique features of each explained) was purchased; an account number and password secured; and an internal modem installed on the library's IBM microcomputer to modify it for online searching. Faculty were introduced to this innovation through a workshop. Lesson plans, including objectives for students, were written and procedures for instruction and evaluation were developed.

Swisher and Mancall (1986) suggest that the "introduction of service can best be facilitated by working with a small number of individuals, using a limited group of databases. In the simplest approach, the school library media specialist works with one class on a research project which demands information beyond that contained in classroom texts." As the service is developed, educational goals and objectives should be clarified before instruction begins.

Vandergrift, Kemper, Champion and Hannigan (1987) question whether or not to skip online systems altogether at this point and wait to move directly into CD-ROM (compact disc-read only memory) applications. If libraries choose to purchase CD-ROM equipment and gain access to databases in disc format on a subscription rather than a connect time basis, unlimited searching of locally held databases is possible. The authors sug-

gest a process for initiating service that includes conducting a feasibility study; creating a planning document that addresses library objectives, personnel, equipment, facilities, and related expenditures; evaluation of hardware and software; analysis of contractual and subscription agreements; and development of policies and procedures for staff and patron use.

Developing Online Related Curricular Goals, Objectives and Curriculum Materials

Establishing online related curricular goals and objectives raises a number of instructional questions which the existing literature addresses only in part. First, there must be consideration of why students should be put online. Mancall and Deskins (1984) point out that logical goals for introducing online to students include:

- Generating new opportunities for instruction;
- Creating enthusiasm for the research process; and
- Expanding the student's knowledge of the diversity of information available, and the various facilities that exist which can provide that information.

Aversa (1985) claims that if school library media specialists accept these as basic goals, instruction must address both the teaching of online skills and expanded instruction in the role of information resources outside the school library media center.

In their chapter on the introduction and management of online information services for students, Aversa and Mancall (1986) expand the discussion of potential instructional goals to include: (1) training students to become knowledgeable information seekers; (2) expanding students' perceptions of how to access their information environment; (3) assisting students in refining their information search process; (4) creating enthusiasm among students for independent investigations; (5) working cooperatively with teachers in planning online instruction that is integrated with classroom activities; and (6) expanding the knowledge of teachers and administrators about what information is available electronically and how to access it. In looking well beyond the school related literature, Aversa (1985) points out that research has shown that most training programs are weak in purposive documentation, with an absence of measurable objectives for trainees, and identifies the two classes of knowledge and skills that must be part of instructional programs: (1) *system-independent skills* that will allow students to understand concepts of information retrieval and how to analyze search problems and design suitable search strategies; and (2) *system-dependent skills* that will permit students access using system commands and protocols, and that will provide them with mechanisms for understanding

database design and how to remain current on system policies and procedures. In addition, students must be taught when an online search is preferable to a manual one and why. Some of these points have been considered in materials and courses that have been developed for students.

Lodish (1987) recommends targeting courses for online instruction that all students take, that are leveled, and that have a curriculum allowing for a variety of topics. Her criteria for selecting units within courses include the need for data analysis, such as statistical and demographic information; units that evaluate a wide range of controversial topics; and topics requiring currency of information.

In developing a course for high school seniors, Craver (1985) lays out nine specific objectives for students. She states that on the completion of a course students should:

- Possess a basic understanding of what online searching is;
- Be cognizant of relevant online searching terminology, including Boolean operators, access points, and limiting functions;
- Be aware of the variety of available databases and comprehend the selection process;
- Have a rudimentary knowledge of the thesauri and indexes that are used in the preliminary stages of search strategy formulation;
- Be able to posit a tentative search strategy in terms of Boolean logic upon directed topics in preparation for actual online searching;
- Be able to correctly interpret a bibliographic record and evaluate the results received;
- Observe the execution of their search strategy on a selected database;
- Utilize some of the citations as research for their debate topics; and
- Be knowledgeable regarding the advantages and disadvantages of online searching.

In developing instructional methods and materials, Craver (1985) uses a printed manual "prepared by the librarian and graduate library assistant, containing an annotated list of 30 searching terms, 18 selected databases, a case study, examples of ideal and actual search strategies, a sample bibliographic record, a presearch preparation form, and a list of the advantages and disadvantages of online searching." Lecture, case study, audiovisual demonstration, and small-group assignments are part of the strategies she uses for the instruction of students. All of Craver's techniques

have been suggested in the online literature as appropriate methods for training people to search.

Curriculum materials are beginning to appear, including a curriculum guide prepared by a committee of selected educators in Pennsylvania to assist both novice and experienced school library media specialists in teaching students to engage in online searching (*Pennsylvania Online*, 1985). This guide is divided into four sections, each of which specifies objectives, content, suggested resources and materials, expected levels of achievement, and procedures for evaluation. The four sections of the document focus on: (1) the role of information in society; (2) developing a search strategy; (3) conducting a search; and (4) recordkeeping and evaluation.

The three major vendors (DIALOG, BRS, WILSONLINE) also have, and appear to be in the process of continually developing, materials for student instruction. Additional details on these materials are provided in the following chapter.

A number of alternative strategies for teaching students have been tried. It is not unusual to find the suggestion that students begin with a manual search (i.e., using the card catalog, traditional print indexes, and catalogs) and then request a computer search. Although this is a feasible approach, it negates one of the main advantages of an online approach—looking at a multifaceted subject in a way that is not possible using printed resources.

Wagers (1984) calls attention to the fact that media specialists should become aware of the characteristics of requests that are most suitable for an online approach, such as topics involving several subject and non-subject concepts, giving the example of "the effects of parent participation on student achievement" (a topic difficult to search manually), and topics with current, jargon-ridden words that are not yet searchable in printed tools.

There is also some difference of opinion about who actually sits at the terminal and does the search. Some authors report that media specialists do the actual searching after discussion of the topic with students, going over keywords, selecting databases, and mapping out search strategies (Mancall & Deskins, 1984). In such instances, students fill out search request forms and searches are performed for them as time permits. In some cases, student assistants are trained to run searches, and in others, students do their own searching. Decisions about "who" does the searching should take into consideration the goals and objectives of the training program and the desired behavioral outcomes.

Management Considerations in Establishing Online Services

Aversa and Mancall (1986) summarize many of the ideas and suggestions in the online literature in regard to the management of online services. They also suggest that potential managers in schools conceptualize the process in terms of a five-pronged approach, including: (l) the preparation of instructional and service goals as the crucial first step; (2) training the potential

teachers of online searching; (3) developing procedures for financing and budgeting this new service; (4) creating appropriate recordkeeping strategies, including forms for collecting evaluative data; and (5) defining evaluation techniques for monitoring progress. Of particular interest here are their suggestions in regard to skills needed by online providers and trainers in schools.

Knowledge in six areas is suggested. First, there is a need to *develop enhanced interviewing skills in working with students and teachers, particularly in the pre-search stage*. Remarks from vendors call attention to the fact that 90 percent of mastering online searching is perfecting the pre-search process (DIALOG, 1983). Forms that can assist with structuring this process are provided by Meadow and Cochrane (1981).

Second, the school media specialist who decides to offer online service and instruction must be able to *sort out the advantages and disadvantages of using different vendors and understand the content of databases available*. Media specialists are urged to read and study directories and database documentation available from vendors; attend conferences directed to online; and consult journals such as *Online* and *Online Review* that can direct novices to opportunities for learning about systems and databases.

Learning to search, the third skill needed, requires training, time to practice, and continuous use of the system learned. Such training is offered at various geographic locations by the major database vendors, including DIALOG, BRS, and WILSONLINE. Workbooks and tutorials are also available to supplement the training received (see the following chapter for more details). In addition, schools of library and information science offer formal coursework, and local inservice opportunities may be available. In choosing a training opportunity, it is important that library media specialists: (1) make sure that the training selected is at an appropriate level, especially if they are novice searchers; (2) try to find an experienced instructor, if possible one who is used to teaching generalists rather than specialists; (3) make sure the training includes hands-on experiences and materials that can be used after the training concludes; and (4) plan to practice using at least five hours of online time before attempting to instruct students or teachers.

Since the school collection will not be able to supply most of the materials located through an online search, school library media specialists must consider a fourth skill: *developing and utilizing interlibrary cooperation*. This includes knowing other community resources and having formal and informal ways of accessing materials in their collections.

Skill area five deals with *developing management strategies, such as recordkeeping for control of finances, planning, training, general collection development, and assessment of adequacy in meeting previously set goals and objectives for this service*. Database vendors can help in establishing contractual procedures, particularly in regard to the use of instructional passwords and minimum usage, and can also help with information about

set-up costs, equipment needs, and billing requirements. Useful record-keeping procedures include the development of forms that capture appropriate data; search request forms to help the user clarify the steps and information needed to perform (or have performed) a successful search; online logs that keep records of search activity, including who is searching, subjects most often requested, subjects most successfully searched, relevance of references retrieved, availability of relevant references, and cost parameters per database and per relevant item retrieved. Examples of logs covering such items can be found in Mancall and Bertland (1985) and Mancall and Deskins (1984).

In developing the sixth skill, *knowing how to teach online searching*, the existing literature points first and foremost to establishing clear instructional goals, including how many systems and how much in-depth knowledge of these systems is expected (Aversa, 1985). Online teaching also requires adequate financial commitment, since terminals and telephones should be available in sufficient number to allow students to practice. This means enough online time should be budgeted for demonstration and practice, and audiovisual aids, handouts, workbooks, and vendor search guides should be made available. Help in teaching can come from allowing and encouraging students to teach each other and from obtaining available teaching materials (e.g., *Pennsylvania Online*, 1985; Schrader, 1985). Before reinventing the wheel, media specialists should look at materials developed by others.

Effects on Students and Student Use of Materials

Various techniques have been used to assess the impact of teaching online searching on the behavior of students. Measurement strategies have been both obtrusive and unobtrusive. Obtrusive measurement, such as directly asking students' opinions of the worthwhileness of completed units on online instruction, was engaged in by Craver (1985) and results were reported as positive. Unobtrusive measurement, such as comparing the referencing patterns in the papers of students who have been given the opportunity to search online with their online search printouts has shown that, although few materials that are identified in an online search are actually used in the bibliography of a completed student paper, students who have been taught to search online use more current and more diverse materials than students who have not been exposed to this method of information retrieval (Mancall & Bertland, 1985; Mancall & Deskins, 1984; Wozny, 1982). The two forms of evaluation should probably be used, as neither method assesses both the question of educational impact *and* user satisfaction.

Testing and keeping records of particular types of use have also been adopted as a means of examining student response to online training. Students have been tested in understanding of terminology, selection of appropriate databases, search strategy formulation, and interpretation of an

online citation (Craver, 1985). Online logs have been used to capture evaluative data, such as who is searching and for which courses; the level of satisfaction of those who search or request a search; the subject areas that are most frequently searched, in which databases, and with what success; the types of materials that are being referenced; how many relevant references are retrieved and the average cost per relevant reference; how many relevant references are located on site, i.e., in the school library media center, and how many are available locally or through interlibrary loan (Mancall & Bertland, 1985). Among the frequently searched databases identified are: Magazine Index; ERIC; Abstrax 400; Books in Print; Biography Master Index; Historical Abstracts; Newspaper Index; Energyline; and Enviroline (Dowling, 1981; Mancall & Bertland, 1985; Mancall & Deskins, 1984; Pruitt & Dowling, 1985; Schindler, 1986; Wagers, 1984; Wozny, 1982).

Discussions of problems associated with database searching focus on the sophistication of many of the materials referenced and the necessity for having well-functioning interlibrary loan arrangements available, since many of the materials that appear relevant are not part of school collections. Callison's (1988) study of the online experience of 41 high school juniors focused on whether students actually used the materials identified and borrowed as a result of online searching. By comparing students' interlibrary loan request forms, online printouts, and the bibliographies attached to their completed papers and projects, a substantial percentage of key sources (i.e., frequently cited items) could be attributed to online searching.

Few basic patterns have been uncovered; however, Wozny (1982) reports that regardless of the absence of online references in student papers, students taught online searching use more current and more diverse types of materials than similar students who are not exposed to this innovation. She believes that the major influences on the student are the teacher and cooperating school library media specialist who used online searching as a technique to achieve their educational objectives, i.e., assisting students to develop appropriate search strategies and expanding their conceptions of the different types of information available.

At this point in time, we have a useful number of experiential accounts of the providers of online services in the school environment and we have begun to accumulate the first research data on the subject. In order to verify what they had assumed from the literature and from observation and to obtain additional data from a variety of schools, rather than focusing on more individual school experiences, the authors of this study conducted a survey of identifiable online providers in schools across the United States in 1986.

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THE ONLINE STUDENT IN 1986: A SURVEY OF CURRENT PRACTICE

The review of the literature of online services in the school setting reveals much of the experience of pioneers who have introduced online in school libraries and media centers, and these experiential accounts are indicative of the increases in the provision of online information sources to students; however, data available in the literature does not provide an overall picture of the status of online in the schools. Intended to fill this need, a survey of online providers in the schools was designed and carried out in 1986. This section summarizes the findings of that data collection and evaluation effort.

Objectives of the Survey

The objectives of the survey were three-fold. First, an effort was made to identify providers of online information services in the schools from all areas of the country in order to establish who the current providers were, where they practiced, and what their services were. Second, once online providers were identified, they were queried as to practice, policies, and the particulars of their services so that current practice could be described. Finally, to facilitate communication between school-based online service providers and the major vendors of online information services, the vendors were asked to report on their programs for the school audience and for directory information on contacts.

Survey Methodology

In order to identify school-based providers of online information services, a brief survey was sent to the state level school media supervisors in all states for which a state level person was listed in *The ALA Yearbook, 1985*. The state school media supervisors were asked to list the names, addresses, and telephone numbers of providers known to them. Thirty-three state level supervisors responded to the questionnaire. Their responses led to the identification of 71 online providers in the schools, and a second survey instrument consisting of 41 questions was distributed to the 71 individuals. An additional nine questionnaires were distributed at a meeting of the American Library Association, for a total of 80 questionnaires. Forty-five usable questionnaires were returned in time for inclusion in the data analysis, a response rate of 56 percent.

Data from the returned survey instruments were analyzed using the frequency and descriptive statistics programs of StatPac—Statistical Analysis Package for the CP/M Operating System, 1985 issue, by Walonick Associates.

A third questionnaire was issued to online vendors which solicited open-ended responses to questions about school-oriented services and industry contacts for school media specialists providing online services.

While the populations surveyed were not randomly selected, the responses indicated that interest in online information service was prevalent in schools in all areas of the country, and that certain practices were widespread enough to provide a framework for describing the online student in 1986.

Survey Findings

The online student in 1986 is described in accordance with survey findings on four basic questions: (1) who is searching, (2) what the policies are for online services in schools, (3) what services are provided, and (4) who the providers are. Percentages given in parentheses in the following paragraphs indicate the proportions of respondents to the questionnaire answering as indicated in the statement.

• *Who is searching in the schools?*

The secondary school student who had been exposed to online searching in late 1986 was likely to attend a school which serves grades 9 through 12 (57%). The provider of online services was most likely to be a school librarian or school library media specialist (86%), but teachers and students themselves were also apt to be searching in about half the schools surveyed (22% and 44% respectively). Generally the student who was online at school had some special status in the school—perhaps a member of the honors class in science or social studies, a member of the debate team, or a participant in an instructional program for which online is a part. In only 4 percent of the schools could any student search at any time. The representative student attended a school where online access had been provided for between one and four years (65%).

Table 1
Experience of School Media Specialists in Providing Online Service.

No. of years online	Percent	Cumulative percent
0 to 1 year	15.0%	15.0%
1-2 years	30.0%	45.0%
3-4 years	37.5%	82.5%
5+ years	12.5%	95.0%
No response	5.0%	100.0%

The provider of online services was probably trained in online searching by one or more means: a vendor or database producer (64%), through self study (44%), or library school courses (31%).

Table 2
Sources of Training of Media Specialists for Online Searching.

Type of training	Percent of media specialists reporting participation
Vendor training	64%
Self-study	44%
Library school courses	31%

Note: Since media specialists reported multiple types of training, total is greater than 100%.

If the student was being taught to search alone, it was equally likely that training was provided through formal presentations as well as informally (69% and 66%). A textbook or other printed material was probably not used by the student learning to search (69%), but if print aids were used, the media specialist may have suggested vendor-produced materials (29%).

The student who was introduced to searching in 1986 probably had no opportunity to really practice searching skills (60%), but if practice time was allowed, the school library media specialist generally determined the amount of time that would be "appropriate."

The student who was searching in school might have found teachers and school administrators learning to search, too, as 78 and 58 percent of the respondents allowed instruction of teachers and administrators. The student was far less likely to find a member of the general public at the next terminal—only 7 percent of the respondents allowed the public to use the search facilities at the school.

• *Policies for online in the schools*

It appears that the student who was searching online databases at school in 1986 was searching primarily for course-related information with the permission of the school library media specialist (62%), or as part of the formal library skills instruction program (51%).

The student was unlikely to pay for online time (90%), although the budget for online searching in the school was likely to be a small amount. The average (mean) funding was under $800 annually, with the median amount closer to $500.

Table 3
Statistics on Annual Budgets for Online Searching

Minimum budget reported =	$0.00
Maximum budget reported =	$3000.00
Mean budget =	$756.12
Median budget =	$499.99

The media specialist might have budgeted for online time as a separate budget line (35%), but nearly as many schools reported that online funds came from special grants (31%). The materials budget and instructional budget accounted for funding in 20 percent of the schools reporting.

Table 4
Budgets and Funding Sources for Online Services.

Source of funds	Percent of schools
Separate budget item	35.0%
Special grant funds	31.0%
Materials budget	12.5%
Instructional budget	7.5%
Other/none reported	14.0%
All sources	100.0%

In spite of the budget size, only 41 percent of the schools reported that students were limited in the amount of time they spent online; the online student, if limited at all, was limited in an ad hoc manner by the school library media specialist.

The online student probably did all his or her searching in the library or media center (80%), although 8 percent used search facilities in classrooms or computer labs. Only 2 percent did their searching at home.

The student was unlikely to manage the logon protocols: 67 percent of the responses indicated that a school library media specialist logged the students onto the system or an automatic logon with a masked password was used. These password monitoring systems probably account for the fact that only one school responding to the survey indicated unauthorized use of the search systems. In most cases, students searching in the schools were using instructional or educational passwords provided by the vendors.

The student was unlikely to maintain an individual search log (9%); more often, a central log of online activity was maintained for the library or

media center as a whole (64%). In 26 percent of the cases, no log whatever was maintained, and school library media specialists relied on bills from vendors for record keeping.

For the online student, the school library media specialist was most often the individual responsible for determining when a search was appropriate (84%), and the student had only about one chance in three of being able to make the determination alone. About 10 percent of the schools reporting said that there was no policy as to who determined when a search was warranted.

The online student of 1986 had only about a 50/50 chance of having the search evaluated by the school library media specialist or teacher. Formal mechanisms for evaluation of student searches (end products) or of search skills were lacking in 51 percent of the schools responding. Questionnaire respondents commented on informal ways in which searches and search skills were monitored, but there was little consensus on who should evaluate and how. This may have been a reflection of the newness of the services, uncertainty of staff and teachers, and a lack of guidance in the popular, practitioner-oriented literature.

Finally, the student searching at school was likely to be working under changing policies. Respondents to the survey commented frequently that although no policy was in place when the response was sent, new policies and procedures under consideration were issues to be reckoned with "next year" or "as the service expands."

• *Systems, Databases, Hardware and Software Used in Schools*

Survey responses varied considerably with regard to policies governing the management of online searching in school sites, but they generally focused on the questions of which services, databases, equipment, and software were used. The accounts of the introduction of searching found in the literature suggest the answers to the queries on what was being used in the schools that provided online services as the online student's exposure to databases, systems, and hardware varied little across sites.

The online student probably searched using an Apple II-E computer as search terminal (72%), and there were probably one or two computers available for searching (67%). IBM personal computers, Digital Equipment Decwriters, and Texas Instruments terminals were used at about one-fourth of the schools, but even if terminals were used, only 6 percent reported having more than two terminals available. Even with few terminals, most schools reported that they were also used for purposes other than searching (79%). The additional uses included computer science courses, library functions, programming classes, and administrative functions.

It appeared that the online student was accessing the major database vendors through a variety of networks, with Telenet (69%) and Tymnet (47%) leading the way. Uninet and Dialnet were used by 35 percent and 29 percent of the respondents, respectively, while only 7 percent reported ever using direct access.

The student using online services was most likely to have used the DIALOG system (56%), with other major vendors represented in the following order: BRS—40 percent; WILSONLINE—18 percent; Compuserve and The Source—less than 15 percent. While these responses were predicted, an interesting finding was that 20 percent of the respondents used local databases not available through major vendors. These included several systems available in the respondent's state locale.

Responses to the vendor survey indicated that the three largest vendors of online services to schools offer special programs and assistance to school-based providers and that all the vendors have specific staff members responsible for school online programs. (These contacts are listed in an appendix.) While respondents to the school library media specialist survey did not indicate that they had worked with vendors on these special programs, these programs are likely to expand as the school market expands. Some of the vendors' offerings are listed below. All three major vendors—BRS, DIALOG, and WILSONLINE—have or will soon release, materials and teaching aids specifically designed for the school market.

At the time of the survey, BRS offered BRS/Educator, an online database search service discounted for K-12 educators using ERIC, Psychological Abstracts, and other databases. They also offered BRS/Instructor, i.e., discounted passwords for teaching students to search online on BRS. Special workshops for school library media specialists and a directory of individuals teaching online and willing to share experiences were also offered by BRS, and instructional materials for individuals teaching BRS searching were being developed.

DIALOG Information Services also offered reduced rate passwords for student searching; special workshops for school library media specialists and a bulletin board for them on DIALMAIL were planned for the school market; and a specific set of materials designed for high school use was introduced in 1986. At the time of this analysis, the new classroom program, Classmate, was being tested, and a new slide presentation and teacher's manual were planned. It is anticipated that by the time of publication of this information analysis product these materials will be available.

H.W. Wilson's WILSONLINE, the most recent entry among the major vendors, was planning to introduce special teaching materials in the near future, and had already granted reduced rates for secondary school use, special workshops, and seminars for the interested school library media specialists. Online searching curriculum materials were also under development by Wilson.

The three major vendors have sponsored innovative programs and research on online searching in schools on a school by school basis. Their sponsorship has ranged from reduced rate searching or free search time to grants-in-aid.

It was clear that the vendors perceived the school market as a valuable and expanding audience for their products and services; however, user cordial systems and after-hours systems, promoted as being designed for the

Table 5
Topics of Online Searches in 45 Schools

Social Sciences	Science and Technology
Current events (6)	Computer-related information (5)
Drug abuse (2)	Health-related topics
Teen pregnancy (2)	Inhalation therapy
Suicide	Anorexia
Psychology of adolescence	Burn treatment
Education	Organ transplantation
Drug intervention	AIDS
Demography	Sexually-transmitted diseases
Current social issues	Alzheimer's Disease
Drunk driving	Sports medicine
	Environmental issues
	Toxic waste
	Pollution
	Math
	Math Anxiety
	Automobile design & engineering
	Biology
	Robotics

end-user searcher, were used in fewer than 10 percent of the respondents' facilities. Gateways and front-ends, which enable the user to search more easily through menu-driven or translated search languages, were used by even fewer respondents (4%). One-fourth of the respondents to the survey save searches to disk (download searches) (26%), and do so to save the cost of printing offline or to reuse search output later on.

Less than half of the respondents reported using search aids, and those who did most often used vendors' brief database descriptions such as DIALOG's "blue sheets." Few reported using database producer-generated printed materials.

The online student in 1986 was most likely to use online to research topics in science, technology, or social science. This may have reflected the currency of topics being searched, or the fact that projects and other activities re-

quiring research are frequently given in science and social science classes rather than text-based assignments, or the multi-conceptual nature of the search topics that make online the more appropriate approach.

Topics of student searches vary widely. The most apparent finding from the question on the "most heavily searched topic" is that current topics—i.e., timely and recent topics—were most heavily searched. A listing of some of the responses is included as Table 5.

The online student is likely to have used Magazine Index (39%), ERIC (38%), one of the news services, or PsycINFO (less than 10%). Other databases cited ranged from WILSONLINE's Readers' Guide (RDG) to highly scientific and technical sources such as Mathfile, BIOSIS, and Medline. A summary of the databases listed is presented in Table 6. This survey confirms the importance of a small number of databases for the school audience. The minor differences in the databases reported here and in the published literature may be attributed to the increased availablity of additional vendors and online resources, as well as the growing sophistication of school library media specialists using online.

Table 6
Databases Frequently Searched in 45 Schools.

Number of times mentioned*	Database name*
26	Magazine Index
26	ERIC
5	UPI News
5	PsycINFO
4	Abstrax 400
4	Dow Jones News Service
4	Books in Print
3	Biosis
3	Reader's Guide
2	Medline
2	Mathfile
2	BiogInd
1	(25 additional databases)

Note: Total number of databases mentioned = 37.

* Respondents were asked to list the three most frequently-used databases in their schools. The fact that many listed one or two databases accounts for the listing of only 37 titles and 87 mentions.

It appears, then, that the online student of 1986 was searching a few databases that met the needs of specific courses, with limited search facilities and few policies governing the management of the search process.

In all but a few cases, the impetus for searching and instruction in searching were provided by a school library media specialist. Who were those media specialists and where were they providing their services?

• *Demographics of Online Search Providers*

The online providers who introduced the mid-1980s student to online services were most often state certified school library media specialists with masters degrees (70%) or bachelor degree librarians with certification (12%). The school library media specialists responding to the survey were between 31 and 50 years of age (67%), and were willing to communicate with others about their online experience in schools (91%).

The geographical distribution of responses to the questionnaires indicated that the online student in 1986 was as likely to be from the middle west as from the northeast, and as likely to be from a rural as an urban setting. Responses were received from all regions of the country, although the degree of response from each state depended upon the state level school media supervisor's awareness of programs within the state where online services were offered. At minimum, it is posited that online in the schools is not a regional phenomenon and that it is a service of interest to those who have pioneered in offering online information and to those who plan to offer the services in the near future.

The Online Environment: A Summary

Although online searching in the school environment is not broadly reported in the literature, it is a topic of growing interest in schools across the country. Both the 1986 survey (as reported in the preceding chapter) and the review of the literature (in the first chapter) point to its importance for this audience. The survey identified particulars of policy, practices and the demographics of searching: who was searching; who was making decisions about the level of support; and the practices that were in operation in regard to search systems selected, equipment being used, and databases searched.

While the survey was of current practice in 1986, the literature review covered a broader period and included experiential accounts of online providers in the schools, limited research that focused on school experiences, and prescriptive advice to the field.

The findings of the three major sections of the survey are presented below in the context of what the literature review indicated. Only findings that can be supported by the overlap of the two types of evidence are noted.

The People

- The literature and the survey indicate that both students and school library media specialists act as searchers. Where students do searching, it appears to be students with special status that are given this opportunity. This special status includes participation in an honors class, identification as gifted and talented, or enrollment in an advanced placement program. Instances of teachers and administrators doing their own searching are infrequent, although the survey indicated that ample instructional opportunities are available for them to learn online searching.

- It is apparent from both the literature and the survey that school library media specialists learn how to search in a variety of ways, including formal courses, vendor training, and self study.

- Students are using online for class related projects and papers.

The Policies

- There is little evidence in the literature on the establishment of policies for online access. This may be due to the age of the literature and the fact that it reflects the experience of the pioneers—those who first reported their experiences based upon initiation of online service and application of ad hoc policies. Where policies are discussed in the

literature, it is from the prescriptive standpoint and often offered by those familiar with practice and policy in other environments.

- Where the survey did address policy issues (including financing, record keeping, and evaluation of searches and search services), the major finding was that policies ranged widely among search service providers. This also reflects the newness of online services in the school environment. For example, 50 percent of the schools reported no formal mechanism for evaluating student searches, and more than 25 percent of the respondents reported that no logs of online activity were kept. Both the experiential literature and our survey indicate that online searching has not yet achieved the status of a budget line in most school library media centers.

The Practice

- In looking at actual use of systems, databases, and equipment, the survey results confirm the findings from both the experiential and the prescriptive literature. Most users are using microcomputers as search terminals, which reflects the fact that online providers in schools entered the online world after microcomputers were available. Apple equipment is widely used in schools, reconfirming Apple's active role in capturing the early educational market.

- The telecommunications networks and database vendors discussed in the literature are the ones reported in the 1986 survey of practice. Tymnet and Telenet were the most frequently used networks; DIALOG and BRS were the most used search service vendors. The survey indicated that WILSONLINE was beginning to impact on the school market; its relatively recent entry in the online world was responsible for its limited mention in the experiential literature.

- There is clear evidence as to which databases receive the most use in the school setting. The most frequently used, as identified in both the survey and the literature review, are Magazine Index, ERIC, ABSTRAX 400, and BIP, as well as various news sources.

Future Scenario

A synthesis of the literature and the 1986 survey point to the following:

- Online service in school settings has arrived and is at a point of rapid expansion.

- Although only a small number of printed resources exist to support instruction in this area, the school media specialist can anticipate the

development of commercially produced materials as more of the major database vendors, producers, and publishers realize the economic potential of this market.

- The range of information services and their management in the school setting will undergo considerable change in response to the initiation of online services.

- Online services as reported in the literature review and our survey of practice may be a transient technology; the availability of databases on CD-ROM, the possibility of shared disks, and the continuing need for currency must all be considered as schools plan for the provision of information to students, teachers, and administrators.

The following chapter suggests materials that can be consulted by school library media specialists who want more detailed information on introductions to the subject, recent texts, instructional guides, accounts of practice, and management suggestions and advice.

The Online Guide: A Path to Published Resources

This locater is designed to help educators, school media specialists, and administrators identify materials that address the topic of online bibliographic searching in the school environment. The materials presented range from general introductions to the subject to accounts of actual online searching programs in schools with suggestions for practice. Materials are grouped into the following categories: introductions to the topic; recent texts and instructional guides; recent articles about online searching in schools; accounts of practice by school media specialists; and management suggestions and advice. Abstracts are provided to highlight substantive information considered particularly useful to readers of this guide.

The materials suggested below are limited to publications that have appeared within the past five years. This order of currency was selected for two reasons: (1) retrieval systems have been refined to such an extent as to outdate older publications, and (2) developments in the school library media area have only been reported since the early 1980s.

Introductions to the Topic

Dowling, Karen. (1984). "Online Searching and the School Media Program." In Shirley L. Aaron and Pat R. Scales (eds.), *School Library Media Annual, 1984*, vol. 2, pp. 425-435. Littleton, CO: Libraries Unlimited, 1984.

This article provides an introduction to the concept and advantages of online bibliographic searching with suggested steps for introducing it into the school library media center. Advantages pointed to are speed, quantity of available records, the cumulative and comprehensive nature of databases, and access to information not available in print form. Steps for introducing the online service include: (1) choosing communications software for the microcomputer, with consideration of automatic dialing and data storage, buffer capacity, column displays, speed of transmission, and on-and-offline printing capability; (2) choosing a search service to suit the needs of the school media center, with attention to the history of what works well in schools (e.g., DIALOG, BRS, The Source, and CompuServe) and such factors as available databases, cost (both fixed and ongoing), customer support services, and training and technical assistance; (3) arranging for training, which is available from vendors, library schools, database producers, professional associations, and online user groups (the possibility of in-house training from media specialists within a district who have previously received online instruction should also be considered); and (4) introducing the system to staff by demonstrating the microcomputer's various applications (such as filing and word processing), and to students, both as part of a general orientation to the media center and as part of a

unit approach to library skills instruction. This chapter also identifies one school system's most frequently searched databases: ERIC, Magazine Index, Medline, Biography Master Index, Biosis Previews, MLA Bibliography, and Historical Abstracts, with usage reflecting a relationship to the areas of science, English, and social studies. A resource path finder and sample searches in DIALOG are also provided.

Tenopir, Carol. (February 1, 1986). "Online Searching in Schools." *Library Journal* 3 (2), 60-61.

This overview of the status of online searching in schools and identification of some that offer online searching programs indicates that DIALOG, BRS, and Wilsonline are actively targeting the school library market. All three offer discount rates for instructional purposes and are now marketing online curriculum materials, such as teacher's guides, student activity sheets, and user manuals. Also available are search software packages and database subsets on floppy disk, such as ERIC MICROsearch and Microcomputer Index on Disk (MIND), which teach searching to students before they gain access to full databases. Tenopir discusses the benefits of online searching in schools, including the enhancement of students' logical thinking and problem solving skills, awareness and use of a wide range of information accessed online, and increased cooperation between classroom teachers and school librarians fostered by this approach to information skills.

Williams, Martha E. (1985). "Databases, Computer-Readable." In *ALA Yearbook of Library and Information Services, 1985*, pp. 110-113. Chicago, IL: American Library Association.

This overview of the industry for readers interested in the state of online searching beyond the school media center environment by Martha E. Williams, a chronicler of the online industry since its inception, indicates current trends in the use of computer-readable databases and provides statistical information on databases used and software packages and features available. Williams attributes the 20-25 percent increase in online database usage to the proliferation of front-ends, gateways, and intermediary systems. She also reports that two of the 16 world-oriented database vendors—Mead Data Central (MDC) and DIALOG—claim 71 percent of *all* usage and 85 percent of library and information center expenditures for online database access; the average expenditure per hour for all features of online service is reported as $117, ranging from $33 to $272, with MDC and DIALOG averaging $160 and $113 respectively; and, of the more than 300 databases used, five—LEXIS, MEDLARS, CA SEARCH, ERIC, and NEXIS—yielded over 500,000 hours of online use per year.

Recent Texts and Instructional Guides

Cabonell, Martha et al. (Summer 1981). "Online Training Sessions: Suggested Guidelines." *RQ* 20 (4), 353-357.

Developed for the Reference and Adult Services Division of the American Library Association, this article presents guidelines for planning and organizing an online training session and is appropriate for two audiences: those individuals who need guidelines for evaluating specific training opportunities, and those who intend to prepare online training sessions and courses. Five types of available training sessions are described: Search Service—Beginning; Search Service—Advanced; Search Service—Subject; Database Producer; and Independent Introductory Workshop. A search service provider is one who provides training on a system through which searchers gain access to particular databases. Database producers compile and provide individual databases to the search services; their training focuses on the use of a particular database. Independent workshops are presented by individuals, libraries, library schools, or commercial information companies. Sliding-scale cost-consideration guidelines for minimum, suggested, and optimum levels of presentation are prescribed for 16 factors in each type of training, including audience level, size, length of session, trainer's experience, terminals and phone lines, other equipment (e.g. , blackboard, overhead projector), additional handouts (copies of transparencies, workbooks), resources (vendor manuals), online time for demonstrations, individual and post-session computer use, type of presentation, registration and publicity, location/facility, evaluation, and follow-up.

Fenichel, Carol H. and Thomas H. Hogan. (1984). *Online Searching: A Primer*, 2nd ed. Medford, NJ: Learned Information.

A general primer for students of information science and those in the field of library science, communications, and database publishing, this manual is primarily concerned with bibliographic database searching, but an overview of numeric and non-bibliographic databases and a section on future prospects are also included. Chapters 1-4 view the online industry and three types of organizations involved: vendors (such as DIALOG, BRS, InfoServices, SDC, NLM, The Source, Dow Jones, CompuServe, and Mead Data Central), database producers, and user groups. Chapter 5 presents the mechanics of searching as a way of understanding its power. Chapters 6-11 discuss equipment, the reference process, costs and charging policies, training, and other administrative considerations. Chapters 12 and 13 introduce non-bibliographic databases. The book provides a glossary, selective bibliography, and appendixes covering the areas of large databases, networks, vendors, and professional online associations, and lists of consultants, brokers and networks, and equipment manufacturers.

Humphrey, Susanne M. and Biagio, John Melloni. (1986). *Databases: A Primer for Retrieving Information by Computer*. Englewood Cliffs, NJ: Prentice-Hall.

This basic "how-to-do-it" primer for an end-user suggests effective approaches for both the information science professional and the general reader in the section entitled "How to Use This Book." Examples drawn from hypothetical models display many of the features of a variety of systems. Chapter 1 highlights the significance and advantages of computerized information retrieval. Chapters 2 and 3 talk about how information is stored and organized for non-computerized retrieval, emphasizing the difficulties of manual manipulation of records. Chapter 4 is a general discussion of the organization and maintenance of computerized information. Chapters 5-12 detail the basic principles and practices of online retrieval using hypothetical models not specific to any one existing system. Chapter 13 examines relationships among users, retrieval services, database suppliers, and telecommunications networks. Chapter 14 discusses user friendliness, command languages, and search formulation, and Chapter 15 explores the impact of microcomputers on retrieval as it affects the form, transmission, and organization of information. Chapter 16 is an extensive checklist which provides practical criteria for selecting a retrieval service.

Meadow, Charles T. and Cochrane, Pauline Atherton. (1981). *Basics of Online Searching*. New York: John Wiley.

A general introduction to the concept of online searching that would be useful for initiating educators and administrators unfamiliar with the topic. Sample records are given for each type of database: bibliographic, directory, numeric, full text, and knowledge. A basic explanation of the function of Boolean logic operators is presented, and sample searches, examples of budgets, and a list of information sources are provided.

Newman, Joan and Motomatsu, Nancy. (January 1985). *Research Goes to School II: How to Go On-Line to the Information Database*. Olympia, WA: Washington Office of the State Superintendent of Public Instruction, KNOW-NET Dissemination PROJECT. ERIC Document No. ED 254 242.

This comprehensive "how-to-do-it" guide includes the following chapters: (1) "Information Sources" (databases, vendors, utilities); (2) "Going Online" (necessary equipment, search preparation, and overview of encyclopedic databases); (3) "Help" (how to secure training, assistance, and software); (4) "Managing the Information Services" (budget suggestions, promotion of the program to staff, record keeping, and reporting); and (5) "Searching with Students" (teacher/media specialist's knowledge of databases used is essential). The guide provides an extensive list of

references and resources as well as useful search evaluation and log report forms. Also included is a beginning program for implementing student searching which focuses on the expectations of both educators and students.

Pennsylvania Online: A Curriculum Guide for School Library Media Centers. (September 1985). Harrisburg, PA: Pennsylvania Department of Education, Bureau of the State Library, Division of School Library Media Services. ERIC Document No. ED 264 887.

This curriculum guide was prepared by a selected group of Pennsylvania educators to assist school library media specialists in introducing and teaching online bibliographic database searching. The curriculum suggested is arranged in four sections: (1) information in society; (2) developing a search strategy; (3) conducting a search; and (4) record keeping and evaluation. Scope and sequence charts are included which indicate 27 student competencies and 41 desired student outcomes. For each course objective, the content, resources, expected levels of achievement, and procedures for evaluation are specified. Some objectives are also supported with lesson plans. A section on online management discusses budget and cost factors, vendors, gateway software, telecommunications, copyright, security, and record keeping. An annotated bibliography, sample budget, sample search, and lists of telecommunications networks, vendors, and commonly used databases are included.

Schrader, Susan. (September 1985). *A Curriculum Guide for Online Database Searching with High School Students.* Ankeny, IA: Heartland Education Agency. ERIC Document No. ED 256 373.

This brief curriculum guide is designed to help educators who have received online search training introduce the concept of online searching to high school students. Goals for online programs are suggested, including: to refine students' thinking skills through strategy formulation; to create enthusiasm for the research process; to prepare students to function in the information society; to broaden awareness of the range of materials available in other library collections; and to introduce students to a new technology. Specific course objectives suggested are to enable students to: understand the process of online database searching; describe the relationship between Boolean logic and database organization; distinguish databases appropriate to a topic; separate a research topic into key concepts; expand or narrow a topic using related terms and synonyms; and retrieve documents from sources outside the school media center. Activities, a student worksheet, and sample searches are included.

Sources of Articles on Online Searching in the School Setting

Catholic Library World

Classroom Computer Learning

Electronic Learning

Library Journal

Online

Online Review

School Library Journal

School Library Media Quarterly

Bibliographies Covering Online in the School Setting

Lathrop, Ann. (May 1987). "Online in Schools: A Selected Annotated Bibliography." *Online* 11(3), 33-36.

Lathrop, Ann. (July 1985)."Online Information Databases in Secondary School Libraries." *Apple Library Users Group* 3(3).

Lathrop, Ann. (1985). "The Use of Online Information Databases in School Library Media Centers." In *Pennsylvania Online: A Curriculum Guide for School Library Media Centers*. Harrisburg, PA: Pennsylvania Department of Education, Bureau of the State Library, Division of School Library Media Services, 1985. ERIC Document No. ED 264 887.

Recent Articles on Online Searching in the School

Beck, Jean C. (1984). "Information Technology for Schoolchildren." *IFLA Journal* 10(2), 145-150.

This article explores how two British research projects contributed to the understanding and utilization of new information technology by school children. The 1980 Microelectronics Education Programme (MEP) assisted in equipping schools with the new technology, developed educational programs and materials for the microcomputer, trained teachers to use these resources in the curriculum, and supported curriculum development. In 1979 the Schools Information Retrieval (SIR) project developed a microcomputer system using a command language and inverted files for use by secondary school students. The objectives of the project were to assist third year science students in their search for information for schoolwork; to demonstrate in a practical way the principles of modern information retrieval; and to help students develop the skills and understanding to function effectively in an information society. The two-year SIR project produced four recommendations for implementing an online curriculum com-

ponent in secondary schools: (1) introduce the principles of online searching to younger, first year students; (2) allow students to create their own databases to ensure their understanding of the concepts and organization of online databases; (3) introduce students to a database with a different type of organization, such as a larger or hierarchical one; and (4) implement SIR across curriculum, age, and ability ranges.

Callison, Daniel. (1988). "Methods for Measuring Student Use of Databases and Interlibrary Loaned Materials." *School Library Media Quarterly* (in press).

Based on the online experience of 41 high school juniors in Carmel, Indiana, the author developed a formula for determining student use of materials identified through their searches, and the use rate of materials borrowed through interlibrary loan networks. Callison summarizes findings of prior use studies and describes his own study, which compared bibliographies from papers written by two student groups at Carmel: a 1985 group which did not have online access, and a 1986 group which searched Wilsonline using WilSearch software. Differences were noted as to the kind and currency of journals cited in the students' papers: (1) the WilSearch group used 29 titles not found in the non-online papers; (2) 71 percent of the WilSearch citations were three years old or less, compared to 47 percent of those from the 1985 group; (3) the 1986 papers cited more different sources and contained more footnotes than the papers from the previous year; and (4) the 1986 papers showed a surprising increase (60%) in the number of newspaper articles cited. However, Callison concedes that the currency of materials identified online may be due to the currency of the database (only two-three years retrospective), and the fact that online students tended to choose more current affairs topics for their research. The author also devised a formula for identifying key sources, i.e., titles which were most frequently cited for a particular information format. Identification of such key materials is helpful in developing the school media center's collection. Callison also explores the effects of interlibrary loan (ILL) procedures on student use of materials requested. Of the 101 book citations identified through WilSearch, 46 were requested through ILL, 18 (39%) arrived in time for use in the students' assignments, and 13 of the 18 were eventually cited in the papers. Of 440 periodical citations identified online, 138 (31%) were requested, 115 (83%) were located in time for use, and 28 of the 115 were actually cited. Factors contributing to this low use rate could be the already high return the students got from books and other materials obtained locally, the dependence upon interlibrary loan for titles not housed in the school collection, and the lengthy turnaround time for ILL requests.

Craver, Kathleen W. (Winter 1985). "Teaching Online Bibliographic Searching to High School Students." *Top of the News* 41(2), 131-136.

Describes the introduction of online bibliographic searching to four classes of 67 college-bound high school seniors involved in a common research assignment. The methodology combined classroom instruction with direct observation of student searching behavior. The two-year program was designed to help students understand what online searching is, become familiar with its terminology, be aware of the variety of available databases, recognize the value of indexes and thesauri as tools for formulating search strategy, form their own strategy, observe their strategy being performed by a skilled searcher, interpret bibliographic records, evaluate the results of the search, and be cognizant of the advantages and disadvantages of online searching. Evaluation of the course was based on the analysis of a 10-question evaluation form, a posttest (provided with the article) which tested students' understanding of terminology, database selection, search strategy and citation reading, and observation of the searches themselves. Ninety-seven percent of the students said the material was presented in an understandable way, over 90 percent reported they could interpret an online bibliographic record, and 90 percent scored 80 percent or higher on the posttest. Although students reported satisfaction with the online experience, they suggested that they would prefer to perform their own searches, and also recommended that the course be introduced in the fall of the academic year, rather than winter, to allow adequate time for the retrieval of documents.

Wozny, Lucy Anne. (Fall 1982). "Online Bibliographic Searching and Student Use of Information: An Innovative Teaching Approach." *School Library Media Quarterly* 11(1), 35-42.

This frequently-cited study reports on the use of information resources by ninth grade honors students who were taught to search online. The online searching component was integrated into a science project and formal online instruction was provided. The study examines student use of a variety of resources, including magazines, books, newspapers, and other formats, as well as the types of libraries they tried and where they were successful in finding information referenced in their papers. The methodology was adapted from an earlier study by Drott and Mancall which used data generated from bibliographies of student papers, student and teacher questionnaires, and an interview with the school library media specialist. In addition, this study examined printouts of student searches. Results of the data analysis are presented in six tables covering: (1) kinds of materials students used, which shows that magazines are a preferred source of information (accounting for 46 percent of all references); (2) rank of unique magazine titles by use, with *Newsweek*, *Time*, *National Geographic*, *U.S. News & World Report*, and *Business Week* heading the list; (3) types of libraries students used and the percentage of information found in them, which revealed that 98 percent of the students tried the school library and 92 percent of those trying used the information found there; (4) references

to types of materials retrieved from different types of libraries, which indicates that media specialists should suggest other sources of information beyond the media center; (5) online databases used and the percentage of searches performed on them; and (6) percentage of records retrieved from the two most-searched databases, Energyline and Environline, as well as the types of materials referenced from them.

Accounts of Practice by School Media Specialists

Kachel, Debra E. (May 1, 1986). "Online Bibliographic Searching: A Pilot Project." *LJ/LSJ Library Computing, Library Journal* 111(8), LC28-LC30.

This project followed the guidelines set forth in *Pennsylvania Online: A Curriculum Guide for School Library Media Centers* from the Pennsylvania State Department of Education. Its goals were to provide training and assistance to the school librarian, funding for online searching with the BRS commercial vendor, and a course of study for teaching online searching to students. Instruction covered terminology, database organization and content, search terms, logical and positional operators, commands, and formulation of a search strategy. The study used two forms of evaluation: (1) cost/time results; and (2) student impressions of the unit. It was found that an average manual search yielded one reference in 13 minutes, while the average online search yielded 12 sources in one minute at a cost of $12.03. The average online time per student was nine minutes, and it took approximately 28 minutes to run, save, and print each search. Students used an average of two databases, with the most frequently searched reported as Magazine Index, ERIC, MATHSCI, PAIS, SocialSCISearch, Sociological Abstracts, and Abstrax 400. Students commented that speed was an advantage in online searching, but that it was too expensive. Interlibrary loan time was a hindrance to many students, and some claimed that any previous computer experience they had was not applicable to this unit. Videotaped searches were suggested as an aid to instruction. An overwhelming majority (96%) felt the online unit was useful and should be continued, and 79 percent felt it should be expanded into other curriculum areas.

Levinson, Michael S. and Walcott, Andrew J. (September/October 1985). "Online Databases—A School Project." *Media and Methods* 22(1), 13-15,57.

Describes a pilot project of online instruction and mediated searching at Rutgers Preparatory School. The students participating in the project were divided into two groups: one group, dubbed the "traditional" group, received no online instruction other than that which was normally introduced to students, and no extra assistance from teachers; the other "online"

group received online training similar to that received by the faculty and help during the research process. Results of the project showed that the online group spent more time on research than their traditional counterparts, but also waited a longer time for search results. Students claimed many of the journal "hits" were too technical for them, and that they felt detached from the mediated search process. The traditional group believed the online students were having an easier time because of the individualized attention they were getting from teachers. The authors observed that student/teacher relationships were better in the online group, and suggested that online papers may have been judged as better because teachers participated in the students' searching process. A significant observation was that the traditional students formulated their topics based on available information, while the online students formulated their topics independently, then sought to retrieve relevant information.

Lodish, Erica E. (May 1987). "Classmate to 2100; DIALOG at Montgomery Blair." *Online* 11(3), 27-31.

This article describes the integration of online searching into the curriculum at Montgomery Blair High School in Montgomery County, Maryland. Lodish offers criteria for selecting courses—and specific units within courses—to be targeted for online instruction and application. These include identifying leveled classes that all students take, and classes that offer a variety of research topics. Units are chosen for their inherent need for analyzable data (such as statistical or demographic information), as well as the availability of controversial topics within the unit. The author describes how online instruction is integrated into the curriculum of the school's four-year magnet program for high ability students. Students are introduced to online in the ninth grade. Boolean logic is part of their geometry class, and they perform actual searches. Online instruction is intensified in the tenth grade as part of earth science and biology research projects. Juniors use online searching to refine topics to be used for their research projects. Lodish cites several benefits of online searching instruction: increased student self-confidence and satisfaction with the online process; reinforcement of research and thinking skills; added direct involvement in the learning process; and the value of long-range planning for assignments. Media specialists and classroom teachers work together in the planning for integrating online instruction into the curriculum. Disadvantages include cost and budgeting strains, unavailability of some of the materials identified online, and the need for databases not available through DIALOG's reduced rate Classroom Instruction Program.

Pruitt, Ellen and Dowling, Karen. (March 1985). "Searching for Current Information Online. How School Library Media Centers in Montgomery County, Maryland, Are Solving an Information Problem by Using DIALOG," *Online* 9(2), 47-60.

This article describes the initiation of a successful online information service in 22 high schools in the Montgomery County Public School system. The DIALOG Information Utility was chosen for its wide range of databases and its discount for classroom instruction, as well as because the school staff was somewhat familiar with it. The goals of the program were to introduce the concept of online searching to students and to expand the realm of resources available to them. The program's objectives were to teach students to: identify parts of a database; create a new database; identify how access to a database is provided; identify topic descriptors; access online information; discriminate between subject databases; and select database characteristics. Statistics revealed increased student online use during the program's second year. Heaviest use was reported in the beginning months of each semester, early fall and spring, reflecting students' awareness of time factors inherent in the online process. ERIC and Magazine Index were accessed most often, followed by Biography Index and Current Affairs. Sample searches from Magazine Index, Newsearch, U.S. Political Science documents, and PAIS are provided, and the process of refining search strategies by expanding terms, choosing appropriate databases, and using subject headings is demonstrated. Pruitt and Dowling briefly describe how the program met curriculum needs and identify problems with print resources. The authors predict that online information retrieval skills will continue to be incorporated into library skills programs, that media center funds will be reallocated for online searching, and that online databases will be used as ready reference tools.

Management

Aversa, Elizabeth S. and Mancall, Jacqueline C. (1986). "Managing Online Information Services in School Library Media Centers." In Shirley L. Aaron and Pat R. Scales (eds.), *School Library Media Annual 1986*, pp. 219-236. Littleton, CO: Libraries Unlimited.

The management of online services is described as an ongoing process involving five major steps. *Step One* suggests establishing instructional and service goals, such as the following: to prepare students to become knowledgeable information seekers, to expand their perceptions of how to access their information environment, to assist them in refining their search process, to generate enthusiasm for independent information seeking, to cooperate with teachers in integrating online instruction with classroom activities, to expand teachers' and administrators' knowledge of the availability of electronic information, to provide documents on demand to meet subject needs, and to increase the local availability of useful documents. *Step Two* defines the necessity for developing new professional skills, including knowledge of how to search particular systems, understanding of existing databases, how to acquire documents referenced online (especially through interlibrary cooperation), how to manage the online service, and how to teach online searching to students. Guidelines and sugges-

tions are given for developing these skill areas. *Steps Three and Four* point to the need for sound management of the online service and suggest procedures for developing budget and record-keeping instruments. Finally, *Step Five* describes simple evaluative measures based on easily collected data to assess the efficiency and effectiveness of the online service.

Casbon, Susan. (November 1983). "Online Searching with a Microcomputer—Getting Started." *Online* 7(6), 42-46.

This overview for the beginner outlines the advantages and disadvantages of using a microcomputer to search in libraries, the legal implications of downloading, predictions of future trends, and considerations for selecting hardware and software. It is pointed out that microcomputers have library applications other than searching, such as word processing and circulation. Downloading provides easy editing, rapid electronic transmission, and saving capability. However, downloading is not legal in all databases and the paucity of legal precedents in this area leaves librarians to their own discretion in interpreting the "fair use intent of the copyright law" as it applies to this innovation. In choosing hardware and software, the author recommends prioritizing the library uses for the microcomputer, evaluating communications software in terms of its compatibility to the micro, and examining printer controls. Operation of the communications package on the chosen microcomputer is also recommended before buying.

Vandergrift, Kay E., Kemper, Marylyn, Champion, Sandra, and Hannigan, Jane Anne. (June/July 1987). "CD-ROM: Perspectives on an Emerging Technology." *School Library Journal* 33(9), 27-31;[and] (August 1987). "CD-ROM: An Emerging Technology. Part 2: Planning and Management Strategies." *School Library Journal* 33(10), 22-25.

This two-part series examines the library applications of selected CD-ROM products and suggests management approaches for CD-ROM implementation. Part 1 describes mixed comments by users of Bowker's Books in Prints (BIP) Plus. These comments include the greater-than-anticipated use of BIP Plus in the public service area, though no direct student use was reported; the need for improved electronic transmission; and the advantages of speed, accuracy (especially in ordering processes), key word searching capability, and time saved. Some respondents were cautious in evaluating the new technology too soon. Book reviews from *School Library Journal*, *Library Journal*, *Publishers Weekly*, *Choice*, and *Booklist*

will also be available soon on CD-ROM *Reviews Plus*. Part 1 examines three CD-ROM products available for young people: Grolier's *The Electronic Encyclopedia*; InfoTrac II, a high-speed quick-print device combining three-year retrospective magazine coverage with current *New York Times* indexing; and GEOVISION, a geography subject application program with graphics capability. An extensive CD-ROM selected book list is included. Part II of the series describes a planning approach to CD-ROM management. Guidelines to consider before embarking on this newest technology include:

- The establishment of a task force to evaluate the benefits of a CD-ROM investment;
- Conduct of a feasibility study to determine how the technology will affect existing library services;
- Creation of procedures and policy documents concerning project objectives and provisions for equipment, facility, and personnel expenditures;
- Evaluation of hardware and software features, machine compatibility, and cost; and
- Analysis of contractual, licensing, and subscription agreements for documentation, training and service support, and use restrictions.

A list of selected serials is included.

Appendix 1. Survey Instruments

To: Directors
School Library Media Divisions

From: Elizabeth S. Aversa, Ph.D.
Jacqueline C. Mancall, Ph.D.
Drexel University
College of Information Studies
Philadelphia, PA 19104

Teaching Online Searching: Locating Practitioners and School Sites

1. Indicate below whether or not you can identify school library media specialists in your state who are currently involved in teaching online searching to students in their schools. Please circle the appropriate answer.

   ___ Yes, my replies are listed below

   ___ No, I know of no one in this state at this time

   ___ No, I believe some school library media specialists are engaged in doing this but I cannot identify them

   ___ No, I would like to help but I cannot assist you with this at this time

2. Attach to this questionnaire the names, addresses and telephone numbers of up to 10 individuals who are currently teaching online searching to students.

3. If you have been involved in any statewide or regional projects involving online searching in schools please comment below. If possible, enclose available printed information about your projects with your questionnaire reply.

4. If you are willing to discuss your experiences by telephone with us, please indicate your telephone number _____
   (area code) (number)

Your name _____

Title _____

State _____

ONLINE PROVIDERS IN THE SCHOOL ENVIRONMENT
A SURVEY OF PRACTICE AND POLICY

Instructions: Please answer all the questions you can. If you cannot answer a question, please leave it blank.

Before you begin, please indicate your title by checking the appropriate blank:

_____Media Specialist or Librarian
_____Teacher
_____Aide
_____School Volunteer
_____Other; please indicate _____.

WHO IS SEARCHING IN SCHOOLS?

1. Check the category which describes the population you serve.

_____K-12
_____K-5
_____6-8
_____9-12
_____Other: _____

2. For whom may online searches be performed in your school? Check as many as apply.

_____Teachers
_____School Administrators
_____Students in selected classes, sections
_____Any student with a valid search request
_____The general public
_____Other; please identify_____.

3. Who does the online searching in your school? Check as many as apply.

_____The library media specialist or assistant(s)
_____Teachers
_____Students in selected classes, sections, or grades
Please identify how these students are chosen:

_____
_____

_____Any students
_____The general public

4. How long have you provided online access in your school? Check one category.

_____More than 5 years
_____3-4 years
_____1-2 years
_____This is the first year of online use in this school

5. How did you learn about/how to search online databases? Check as many as apply.

_____Library school courses
_____Continuing education courses
_____Self study on my own
_____Vendor or database producer training
_____Other; please identify_____

6. How are students instructed in online searching? Check as many as apply.

_____Formal presentation
_____Informally
_____Through workbooks
_____Other; please identify_____

7. In teaching students to search, do you use any material from a textbook and/or workbook?

_____No
_____Yes; Please identify_____

8. Do students have an opportunity to practice searching? Check one.

_____No
_____Yes
If YES, indicate time limit_____

9. May individuals other than students be instructed in online searching? Check as many as apply.

_____Teachers
_____School administrators
_____Members of the general public
_____Others; please identify_____

WHAT ARE POLICIES FOR ONLINE IN SCHOOLS?

10. When do students use online searching? Check as many as apply.

_____Only for course-related needs, with teacher permission
_____Only for course-related needs, with media specialist permission
_____As part of the library/media center instruction program
_____Any time they feel an online search will help them
_____Other; please describe_____

11. Do students pay for online time? Check one only.

_____No
_____Not directly, but through general fees
_____Not directly, but through an online lab fee
_____Yes, connect time used is paid for by the student
_____Yes, there is a fee for each search (not based on connect time)
_____Yes, students pay a fee of some sort, but not if it is an assigned search (In other words, required or assigned searches are free, others have a fee attached)
_____Other; please describe financial arrangements for student searching

_____
_____

12. What is the source of funds for online searching?

_____Online is a separately budgeted item.
_____Online is not an ongoing budget item. Generally, funds come from:
_____special grants
_____materials budget
_____instructional budget
_____contributions
_____other; please describe_____
The current funding is $_____

13. Are students limited as to the amount of time they can spend searching?

_____NO
_____YES; restrictions are_____
_____

14. Where do students do their online searching? Check as many as apply.

_____In the library/media center
_____In the classroom
_____In a special online facility, not the library/media center
_____In a separate computer lab
_____At home

15. How are passwords for student searching managed in your school? Check one only.

_____Each student is assigned an individual password for one-time use.
_____Eligible students are assigned passwords for a set time period. For how long are such passwords issued?_____
_____A staff member controls all passwords and logs students onto desired systems.
_____An automatic logon with masked password is used.
_____Other; please describe_____
_____

16. Do students use FULL SERVICE passwords, or do they use INSTRUCTIONAL or other less expensive passwords for searching? Check as many as apply.

_____Students use INSTRUCTIONAL passwords while learning to search and full service passwords after their instructional program is completed.
_____Students always use FULL SERVICE passwords.
_____Students always use INSTRUCTIONAL or EDUCATIONAL passwords.
_____Other; please describe_____

17. Are logs of online activity maintained? Check as many as apply.

_____Students maintain individual logs.
_____A central log of online activity is maintained for all users.
_____No logs are kept.
_____Other; please explain _____
_____
_____
_____

18. Who determines when an online search is appropriate? Check as many as apply.

_____The teacher.
_____The library/media specialist.
_____The student.
_____Other; please identify_____
_____There is no policy for this.

19. If a student is searching online and has difficulty, who assists? Check as many as apply.

_____Nobody (The student has to be on his/her own).
_____Student assistants.
_____The school library media specialist or a paid aide.
_____The teacher.
_____Other; please describe_____

20. Has unauthorized use of online systems ever been a problem in your school? Check one.

_____No
_____Yes; please describe briefly_____
_____

21. Are student searches evaluated?

_____No
_____Yes; please explain _____
_____
_____
_____
_____

22. If searches are evaluated, who performs the evaluation? Check as many as apply.

_____Searches are not evaluated.
_____Students evaluate their own searches.
_____Teachers.
_____School library/media specialists.
_____Searches are not evaluated in this school.
_____Other; please describe_____

WHAT SYSTEMS, DATABASES, HARDWARE AND SOFTWARE ARE USED IN THE SCHOOL?

23. What equipment do you use for searching? Check as many as apply.

_____Microcomputers are used as terminals. Identify manufacturer and model_____ (For example, Apple IIE)
_____Terminals are used. Identify manufacturer and models_____ (For example, TI Silent 700)

24. How many "facilities" do you have for searching? Indicate the number below. (This refers to how many computers or terminals are available for online searching.)
The number is_____.

25. Are your terminals/computers also used for other purposes?

_____NO
_____YES
If "yes", please indicate which other functions are served by the equipment. Check as many as apply.
_____Computer science related courses.
_____Administrative functions (such as student records, report cards).
_____Library/media center functions (such as circulation, administrations, or serials, etc.)
_____Other; please describe_____

26. Which access method do you use for online searching? Check as many as apply.

_____Dialnet
_____Tymnet
_____Telenet
_____Uninet
_____Direct access
_____Other; please list_____

27. What vendors' systems are searched in your school? Check as many as apply.

_____DIALOG
_____BRS
_____WILSONLINE
_____COMPUSERVE
_____THE SOURCE
_____Other; please list_____

28. Do you know of students using any of the following? Check as many as apply.

_____WILSEARCH
_____KNOWLEDGE INDEX
_____BRS AFTER DARK
_____Other user-cordial systems; please identify _____

29. From your records or knowledge, which databases are searched most often in your school? Please list the three which are used the most. (If you cannot recall the names of the databases, please list topic area(s).)

_____
_____
_____

30. Please list the most popular search topics for which searches were carried out in your facility.

_____
_____
_____

31. What software do you use for searching?

_____
_____

32. Are you using any databases on videodisk or CD-ROM? If so, what?

_____NO
_____YES If yes, please describe _____
_____

33. Do you save searches to disk (download)?

_____NO
_____YES; please indicate WHY. _____
_____

34. Do your students search vendor systems through intermediate menu-driven systems (such as Easy Net)?

_____NO
_____YES. If yes, please describe_____

35. Do your students use printed search aides provided by vendors or database producers (such as DIALOG "blue sheets," etc.)?

_____NO
_____YES; please list items used.
_____
_____
_____
_____

WHAT SUBJECT AREAS ARE SEARCHED IN YOUR SCHOOL?

36. Please identify the subject in which most searching is done in your school. Check one only.

____Science and technology
____History
____Social sciences other than history
____Humanities
____Other; please list _____
_____

37. Please list the courses and grade levels for which searching is done. (For example "American History - 11th grade)

_____
_____
_____
_____
_____

38. Based on the courses listed above list what you believe are the most heavily searched topics. (For example, History--Holocaust; American History--Civil War; Science--Solar Energy).

_____
_____
_____
_____
_____

DEMOGRAPHICS OF ONLINE SEARCH PROVIDER

39. Please check the classification below that best describes the school library media specialist in your school.

____state certified school library media specialist with master's degree
____holder of master's degree without state certification
____BA or BS librarian or school library media specialist with certification
____BA or BS librarian or school library media specialist without certification
____librarian or media specialist with no formal training/education in library or information science
____other; please describe_____

40. Please indicate the age of the school library media specialist responsible for online instruction in your school.

____20-25 years old
____26-30 years old
____31-40 years old
____41-50 years old
____51-60 years old
____Over 60 years of age

41. Please indicate your name, address, and telephone number if you would be willing to provide more information as an "online provider" in the school environment.

_____

_____

_____

PHONE _____ _____
(area code) (telephone number)

THANK YOU FOR YOUR COOPERATION

Elizabeth S. Aversa
Jacqueline C. Mancall
Drexel University
College of Information Studies
Philadelphia, PA 19104
215-895-2474

PLEASE RETURN THIS QUESTIONNAIRE ON OR BEFORE AUGUST 4, 1986.

PLANS AND PRODUCTS FOR ONLINE SERVICES TO THE SCHOOL MARKET

Please answer the questions below in the space provided. If the proprietary nature of some information precludes your answering a question, please so note. Please do not hesitate to contact us at 215-895-2474 if you wish to discuss your answers with us.

1. Does your organization have a person, unit, or department which is specifically responsible for developing products for the school market? If so, please identify the person(s) to be contatced by practitioners.

2. If your organization has developed any products, publications, or teaching aids specifically for the school market, please list and describe those items here. If you have literature promoting those products, please attach a copy to your questionnaire and return it to us. If a product has been announced, but is not yet available, please note the anticipated release date.

3. Which of your organization's products and services are currently most used by the school market?

4. Does your organization offer the following (check as many as apply)?

--Reduced rates for searching by students
--Instructional passwords for school students learning to search online - reduced rates
--Reduced rates for searching by school media specialists in the schools
--Special publications/teaching aids for school students who are learning to search online
--Special workshops/seminars for school media specialists
--Special workshops/seminars for school students
--Marketing materials (brochures, etc.) directed at the school market
--Customer service contacts especially for school users (i.e., a special "hot line" or other contact for the school student or media specialist
--OTHER (Please list)

5. Indicate the proportion of the users of your online services that are:

Secondary school students -----%
Elementary school students -----%
School media personnel/school librarians -----%
Do not have this information -----

6. Has your organization participated in, supported, or provided financial assistance/funding for demonstration projects involving online searching in the schools? If so, please describe.

7. Is your organization currently involved in research in the area of school/student use of online services? Please describe any projects and the names of project directors who may be contacted regarding their work.

8. May we list you or another person in your organization in our publication as a contact for school personnel? Please list the name, address, and telphone number of the most appropriate contact.

THANK YOU FOR YOUR COOPERATION!

Return replies to: Elizabeth S. Aversa
Jacqueline C. Mancall
Drexel Univeristy
College of Information Studies
Philadelphia, PA 19104
215-895-2474

Appendix 2. Vendor Contacts for School Library Media Specialists

BRS	Mary McMahon, Educational Services Coordinator BRS Information Technologies 1200 Route 7 Latham, NY 12110 215-646-6897 or 800-345-4BRS
DIALOG	Anne S. Caputo, Program Manager Classroom Instruction Program DIALOG Information Services, Inc. 1901 North Moore Street Suite 809 Arlington, VA 22209 703-553-8455
DOW JONES	Margaret Bakes Dow Jones and Company P.O. Box 300 Princeton, NJ 08543-0300 609-452-1511
WILSONLINE	Rhoda Garoogian, Manager Training Documentation Staff H.W. Wilson Company 950 University Avenue Bronx, NY 10452 212-588-2266